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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,898	11/25/2003	David H. Mead	IN-5692	1188

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EXAMINER

KRUER, KEVIN R

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary**Application No.**

10/723,898

Applicant(s)

MEAD ET AL.

Examiner

Kevin R. Krueer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2006.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7,10,11,13-20 and 22-26 is/are pending in the application.
 4a) Of the above claim(s) 15,22 and 23 is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 7,10,11,13,14,16-20 and 24-26 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) ☐ Notice of Informal Patent Application (PTO-152)
 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 15, 22, and 23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 21, 2005.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 7, 10, 11, 13, 16, 17, 19, 20, and 24, are rejected under 35 USC 103(a) as being unpatentable over Ravinovitch et al (US 4,424,292) in view of Kraft et al (US 4,056,397) for reasons of record.

Ravinovitch teaches a vinyl polymer composition suitable for outdoor use in the sunlight. The heat buildup in articles made from the composition is lowered without changing the UV protection or the color of the articles by employing in the composition an infrared reflective pigment (abstract). The vinyl polymer is a vinyl chloride (col 2, lines 38+) comprising a plasticizer or a mixture of plasticizers (col 3, lines 54+). Suitable plasticizers include phthalates (col 3, lines 54+). The pigment is used in amounts such as to lower the heating of the article without changing the UV protection or color thereof (col 4, lines 18+). Said teaching is understood to read on the limitations of claims 6, 8, 19, and 20 that "a sufficient amount of the pigment is used such that there is essentially no transmittance of light of near infrared wavelength through a

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coating layer of a desired thickness formed from the plastisol composition. The film may be utilized alone or applied as a capstock to a substrate (col 3, lines 18+). Said structures when used as a vinyl siding are understood to be flexible (see US 4,728,667; col 1, lines 6+).

Ravinovitch does not teach the claimed thickness. However, Kraft teaches the thickness of a film comprising a reflective pigment may be optimized in order to optimize the reflective spectra of the layer. Specifically, Kraft teaches a light reflective white pigment in a binder and teaches the whiteness (herein understood to be synonymous with reflectiveness) of the film can be optimized by optimizing its thickness (col 8, lines 18+). While the teachings of Kraft are drawn to a pigment reflective in the visible region and the teachings of Ravinovitch is drawn to a pigment reflective in the IR region, the examiner takes the position the teachings of Kraft and Ravinovitch are analogous to one another and in the same field of endeavor (reflective pigment containing layers). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the thickness of the infrared reflective pigment-containing layer taught in Ravinovitch. The motivation for doing so would have been to optimize the reflection spectra of the layer.

Ravinovitch also does not teach that the pigment should be included in a sufficient amount so that "there is essentially no transmittance of light of near infra-red wavelength through the film." However, Ravinovitch does teach the pigment reflects the infrared energy (col 1, lines 64+), which is desirable to lower the heating of the article.

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The courts have held that it is not inventive to discover the optimum or workable range by routine experimentation when the general conditions of the claimed invention are disclosed in the prior art (See MPEP 2141.05). Thus, it would have been obvious to one of ordinary skill in the art to add sufficient pigment in order to block the desired amount of infrared energy. The motivation for doing so would have been to reduce heating of the article.

4. Claims 14 and 18 are rejected under 35 USC 103(a) as being unpatentable over Ravinovitch et al (US 4,424,292) in view of Kraft et al (US 4,056,397), as applied to claims above, and further in view of Sullivan et al (US 6,416,868) for reasons of record.

Ravinovitch is relied upon as above, but does not teach that the capstock should be applied to a metal substrate. However, Sullivan teaches an IR reflective coating that reduces IR induced heat buildup (abstract). Said coating is useful on wood, glass, ceramic, metal and plastic substrates (col 6, lines 47+). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the coating taught in Ravinovitch to metal siding known in the art. The motivation for doing so would have been that Sullivan teaches IR induced heat buildup is an issue on metal substrates as well as plastic substrates.

5. Claims 7, 10, 11, 13, 16, 17, 25, and 26 are rejected under 35 U.S.C. 103(a) as being obvious over Stamper et al (US 4,574,103) for reasons of record.

Stamper teaches a plastisol grade vinyl chloride polymer containing 50-80pbw plasticizer (col 1, lines 42+). The composition further includes tin oxide and is cast onto a release paper (col 2, lines 21+). A plastisol grade PVC composition containing

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titanium dioxide is then applied to the first plastisol layer and the resulting laminate is wound onto a take-up roll (col 2, lines 37+). Said layers should each have a thickness of 12-50mils (col 2, line 40). The laminates are understood to be flexible since they can be wound. Said laminates are taught to be applicable to roofs and/or walls (col 3, lines 1+). Said pigments are included in amounts of 2-8pbw (col 1, lines 28+).

The titanium dioxide is known to be IR reflective and is included in amounts to improve weatherability and resistance to sunlight (col 1, lines 28+). Resistance to sunlight is understood to be inclusive of reflecting IR wavelengths. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the amount of titanium dioxide utilized in the coating taught in Stamper. The motivation for doing so would have been to optimize the laminate's resistance to sunlight. By doing so, the examiner takes the position that said amounts of titanium dioxide are necessarily adjusted to be included in "sufficient amounts so that there is essentially no transmittance of light of near infrared wavelength through the film."

Response to Arguments

Applicant's arguments filed May 14, 2006 have been fully considered but they are not persuasive.

Applicant argues it would not have been obvious to the skilled artisan to combine Ravinovitch and Kraft in the manner suggested by the examiner. Specifically, Applicant argues neither reference teaches the claimed thickness of the claimed film. The examiner acknowledges neither reference explicitly teaches the claimed thickness but maintains the position that Kraft teaches thickness is a result effective variable.

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Applicant argues the teachings of Kraft are not analogous to the teachings of Ravinovitch because said teachings deal with white pigment, which is not synonymous with IR reflective pigment. While the teachings of Kraft are drawn to a pigment reflective in the visible region and the teachings of Ravinovitch is drawn to a pigment reflective in the IR region, the examiner takes the position the teachings of Kraft and Ravinovitch are analogous to one another and in the same field of endeavor (reflective pigment containing layers). Furthermore, the examiner maintains the position the teachings of Kraft with regards to pigment may be extrapolated to other pigments regardless of the wavelength at which they reflect. Applicant has not convincingly argued as to why such an extrapolation would have been outside the knowledge of the skilled artisan at the time the invention was made. Thus, the rejection is maintained.

The examiner notes the teachings of Kraft with regards to "unduly thick layers" and amount of pigment but maintains the rejection of record because Kraft clearly establishes thickness as a result effective variable and does suggest the correlation between thickness and reflectance changes at higher thickness or with relative amounts of pigment.

Applicant further argues Ravinovitch teaches the pigment should be contained at an effective level which is not the same as providing essentially no transmittance of light near IR wavelengths. The examiner never took said position. Rather, the examiner took the position that Ravinovitch teaches that IR transmittance is a result effective variable and the skilled artisan would have been motivated to providing essentially no transmittance of light near IR wavelength to reduce heating of the article. Applicant

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argues Ravinovitch is searching for a balance of IR energy reflections and UV protection/color. There is nothing of record that suggests the claimed limitation and the teachings of Ravinovitch are mutually exclusive. Furthermore, the teachings of Ravinovitch clearly demonstrate that the claimed invention was within the skill of one having ordinary skill in art. Ravinovitch also provides motivation for utilizing the claimed amount of pigment (i.e. the reduction of heating of the article).

With regards to the rejection based upon the teachings of Sullivan, Applicant argues Sullivan does not overcome the deficiencies of Ravinovitch and Kraft. The examiner disagrees for the reasons noted above.

With regards to Stamper, Applicant argues there is no suggestion in the reference that the article reduces heat buildup. The examiner never took said position. Furthermore, the claims do not state the coating must reduce the heat build-up of the article. Applicant further argues that the titanium dioxide pigment of Stamper does not read on the claimed IR-reflective pigment. For example, US 4,301, 204 teaches titanium dioxide is a good infra-red reflector and provides an attractive white color (col 2, lines 10+).

Thus, the rejections are maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R. Kruer whose telephone number is 571-272-1510. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin R. Kruer
Patent Examiner-Art Unit 1773